

WHAT IS CLAIMED IS:

- 1 1. A method for manufacturing optoelectronic devices, comprising the steps of:
2 forming a layered structure having a plurality of layers including a bottom electrode layer,
3 a top electrode layer, and one or more active layers between the top and bottom electrode
4 layers;
5 cutting through one or more of the layers of the layered structure to divide the layered
6 structure into one or more separate device sections, each section having a portion of the
7 active layer disposed between portions of the top and bottom electrode layers, wherein at
8 least one of the layers is an unpatterned layer at the time of cutting;
9 providing at least one form of protection that prevents shorts which could arise from the
10 cutting steps;
11 assembling two or more device sections into a module; and
12 electrically connecting the bottom electrode layer portion of one device section to the top
13 electrode layer portion of another device section.
- 1 2. The method of claim 1 wherein cutting through one or more of the layers of the layered
2 structure includes cutting through a substrate layer of the layered structure
- 1 3. The method of claim 1 wherein cutting through one or more of the layers of the layered
2 structure includes cutting through all of the layers of the layered structure.
- 1 4. The method of claim 1 wherein all of the layers of the layered structure are unpatterned
2 layers at the time of cutting.
- 1 5. The method of claim 1, further comprising protecting an edge of a device section against
2 undesired electrical contact between two or more of the bottom electrode, top electrode
3 and active layer portions.
- 1 6. The method of claim 5 wherein protecting an edge of a device section includes the step
2 of, before cutting through one or more of the layers of the layered structure, placing short-
3 proofing material between adjacent layers of the layered structure proximate a location
4 where the layered structure is to be cut.
- 1 7. The method of claim 5, wherein protecting an edge of a device section includes the step
2 of passivating a side of the device section.

- 1 8. The method of claim 7 wherein passivating a side of the device section includes the step
2 of oxidizing the side, exposing the side to passivating chemicals, or coating the side with
3 a passivating substance.
- 1 9. The method of claim 1 wherein assembling two or more device sections into a module
2 includes the step of laminating the two or more device sections side-by-side between
3 layers of laminating material.
- 1 10. The method of claim 1, further comprising the step of, before cutting through one or more
2 of the layers of the layered structure to divide the layered structure into one or more
3 device sections, patterning the top electrode layer and/or active layers to define the one or
4 more device module sections.
- 1 11. The method of claim 10, further comprising protecting an edge of a device section against
2 undesired electrical contact between two or more of the bottom electrode, top electrode
3 and active layer portions of the one or more device module sections.
- 1 12. The method of claim 11, wherein protecting an edge of a device section includes the steps
2 of:
3 after patterning the top electrode layer and/or active layers, disposing an insulating
4 material between the active layer portions of two or more adjacent device sections.
- 1 13. The method of claim 12 wherein forming a layered structure includes covering the active
2 layer and the insulating material with an unpatterned top electrode layer before cutting the
3 layered structure to divide the layered structure into one or more device sections.
- 1 14. The method of claim 12 wherein cutting the layered structure includes cutting the layered
2 structure at locations corresponding to the insulating material.
- 1 15. The method of claim 1 wherein electrically connecting the bottom electrode layer portion
2 of one device section to the top electrode layer portion of another device section includes
3 the steps of:
4 exposing a portion of an upper surface of the bottom electrode layer portion of a first
5 device section; and connecting an electrically conductive material between the top
6 electrode layer portion of a second device section and the exposed portion of the upper
7 surface of the bottom electrode layer.

- 1 16. The method of claim 1 wherein the optoelectronic device is a photovoltaic cell.
- 1 17. The method of claim 1 wherein the optoelectronic device is an organic light emitting
2 device (OLED).